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1 A common data management infrastructure for adaptive algorithms for PDE solutions 
 Manish Parashar, James C. Browne, Carter Edwards, Kenneth Klimkowski
 November 1997 **Proceedings of the 1997 ACM/IEEE conference on Supercomputing (CDROM)**
Publisher: ACM Press
 Full text available:  pdf(160.93 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

This paper presents the design, development and application of a computational infrastructure to support the implementation of parallel adaptive algorithms for the solution of sets of partial differential equations. The infrastructure is separated into multiple layers of abstraction. This paper is primarily concerned with the two lowest layers of this infrastructure: a layer which defines and implements dynamic distributed arrays (DDA), and a layer in which several dynamic data and programming ab ...

Keywords: HP-adaptive finite elements, adaptive mesh-refinement, distributed dynamic data structures, fast multipole methods, parallel adaptive algorithm, problem solving environment

2 A new model for integrated nested task and data parallel programming 
 Jaspal Subhlok, Bwole Yang
 June 1997 **ACM SIGPLAN Notices , Proceedings of the sixth ACM SIGPLAN symposium on Principles and practice of parallel programming PPOPP '97**, Volume 32 Issue 7
Publisher: ACM Press
 Full text available:  pdf(1.27 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

High Performance Fortran (HPF) has emerged as a standard language for data parallel computing. However, a wide variety of scientific applications are best programmed by a combination of task and data parallelism. Therefore, a good model of task parallelism is important for continued success of HPF for parallel programming. This paper presents a task parallelism model that is simple, elegant, and relatively easy to implement in an HPF environment. Task parallelism is exploited by mechanisms for di ...

3 Regular expression pattern matching for XML 
 Haruo Hosoya, Benjamin Pierce
 January 2001 **ACM SIGPLAN Notices , Proceedings of the 28th ACM SIGPLAN-SIGACT**

symposium on Principles of programming languages POPL '01, Volume 36

Issue 3

Publisher: ACM PressFull text available:  pdf(1.25 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We propose *regular expression pattern matching* as a core feature for programming languages for manipulating XML (and similar tree-structured data formats). We extend conventional pattern-matching facilities with regular expression operators such as repetition (*), alternation (|), etc., that can match arbitrarily long *sequences* of subtrees, allowing a compact pattern to extract data from the middle of a complex sequence. We show how to check standard notions of exhaustiveness and r ...

4 Direct numerical simulation of turbulence with a PC/linux cluster: fact or fiction? 

- ◆ G.-S. Karamanos, C. Evangelinos, R. C. Boes, R. M. Kirby, G. E. Karniadakis
January 1999 Proceedings of the 1999 ACM/IEEE conference on Supercomputing (CDROM)

Publisher: ACM PressFull text available:  pdf(1.38 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)**5 Technical reports** 

- ◆ SIGACT News Staff
January 1980 ACM SIGACT News, Volume 12 Issue 1

Publisher: ACM PressFull text available:  pdf(5.28 MB) Additional Information: [full citation](#)**6 Loop optimization for a class of memory-constrained computations** 

- ◆ D. Cociorva, J. W. Wilkins, C. Lam, G. Baumgartner, J. Ramanujam, P. Sadayappan
June 2001 Proceedings of the 15th international conference on Supercomputing

Publisher: ACM PressFull text available:  pdf(160.59 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Compute-intensive multi-dimensional summations that involve products of several arrays arise in the modeling of electronic structure of materials. Sometimes several alternative formulations of a computation, representing different space-time trade-offs, are possible. By computing and storing some intermediate arrays, reduction of the number of arithmetic operations is possible, but the size of intermediate temporary arrays may be prohibitively large. Loop fusion can be applied to reduce memor ...

7 Applications and problem solving environments: Enhancing scalability of parallel structured AMR calculations 

- ◆ Andrew M. Wissink, David Hysom, Richard D. Hornung
June 2003 Proceedings of the 17th annual international conference on Supercomputing

Publisher: ACM PressFull text available:  pdf(312.11 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We discuss parallel performance of structured adaptive mesh refinement calculations using the SAMRAI library. We focus on fundamental aspects of adaptive gridding and dynamic computation of changing data dependencies. Previous analysis of performance of large-scale parallel adaptive calculations revealed poor scaling in these operations. Specifically, we found that these operations are inexpensive for small problems, but that

their costs can become unacceptable for problems run on large numbers ...

Keywords: adaptive mesh refinement, combinatorial algorithms, parallel computing

8 Applications of Ramsey's theorem to decision tree complexity

◆ Shlomo Moran, Marc Snir, Udi Manber
October 1985 **Journal of the ACM (JACM)**, Volume 32 Issue 4

Publisher: ACM Press

Full text available:  pdf(1.02 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Combinatorial techniques for extending lower bound results for decision trees to general types of queries are presented. Problems that are defined by simple inequalities between inputs, called order invariant problems, are considered. A decision tree is called k-bounded if each query depends on at most k variables. No further assumptions on the type of queries are made. It is proved that one can replace the queries of any k ...

9 Terascale spectral element algorithms and implementations

◆ H. M. Tufo, P. F. Fischer
January 1999 **Proceedings of the 1999 ACM/IEEE conference on Supercomputing (CDROM)**

Publisher: ACM Press

Full text available:  pdf(2.06 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

10 Simulating binary trees on X-trees (extended abstract)

◆ Burkhard Monien
June 1991 **Proceedings of the third annual ACM symposium on Parallel algorithms and architectures**

Publisher: ACM Press

Full text available:  pdf(1.06 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

11 Dense edge-disjoint embedding of binary trees in the mesh

◆ Alan Gibbons, Michael Paterson
June 1992 **Proceedings of the fourth annual ACM symposium on Parallel algorithms and architectures**

Publisher: ACM Press

Full text available:  pdf(577.67 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

12 Work-preserving emulations of fixed-connection networks

◆ Richard R. Koch, F. T. Leighton, Bruce M. Maggs, Satish B. Rao, Arnold L. Rosenberg, Eric J. Schwabe
January 1997 **Journal of the ACM (JACM)**, Volume 44 Issue 1

Publisher: ACM Press

Full text available:  pdf(719.89 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#), [review](#)

Keywords: graph embeddings, network emulations, parallel architectures, processor arrays

13 Work-preserving emulations of fixed-connection networks

 R. Koch, T. Leighton, B. Maggs, S. Rao
February 1989 **Proceedings of the twenty-first annual ACM symposium on Theory of computing**

Publisher: ACM Press

Full text available:  pdf(1.77 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In this paper, we study the problem of emulating TG steps of an NG-node guest network on an NH-node host network. We call an emulation work-preserving if the time required by the host, TH, is &Ogr;(TGNG/NH) because ...

14 The physical mapping problem for parallel architectures

 Lenwood S. Heath, Arnold L. Rosenberg, Bruce T. Smith
June 1988 **Journal of the ACM (JACM)**, Volume 35 Issue 3

Publisher: ACM Press

Full text available:  pdf(2.30 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The problem of realizing an idealized parallel architecture on a (possibly fault-laden) physical architecture is studied. Our formulation performs the mapping in the light of the algorithm that one wants to implement on the idealized architecture. A version of the mapping algorithm suggested by the DIOGENES methodology for designing fault-tolerant VLSI processor arrays is settled definitely. Two quality metrics for mappings are considered, the first embodying an idealized notion of ...

15 Research papers: graph and tree-structured data: Similarity evaluation on tree-structured data

 Rui Yang, Panos Kalnis, Anthony K. H. Tung
June 2005 **Proceedings of the 2005 ACM SIGMOD international conference on Management of data**

Publisher: ACM Press

Full text available:  pdf(501.04 KB) Additional Information: [full citation](#), [abstract](#), [references](#)

Tree-structured data are becoming ubiquitous nowadays and manipulating them based on similarity is essential for many applications. The generally accepted similarity measure for trees is the edit distance. Although similarity search has been extensively studied, searching for similar trees is still an open problem due to the high complexity of computing the tree edit distance. In this paper, we propose to transform tree-structured data into an approximate numerical multidimensional vector which ...

16 Technology decomposition and mapping targeting low power dissipation

 Chi-Ying Tsui, Massoud Pedram, Alvin M. Despain
July 1993 **Proceedings of the 30th international conference on Design automation**

Publisher: ACM Press

Full text available:  pdf(657.86 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

17 Level set and PDE methods for computer graphics

 David Breen, Ron Fedkiw, Ken Museth, Stanley Osher, Guillermo Sapiro, Ross Whitaker
August 2004 **Proceedings of the conference on SIGGRAPH 2004 course notes GRAPH '04**

Publisher: ACM Press

Full text available:  pdf(17.07 MB) Additional Information: [full citation](#), [abstract](#)

Level set methods, an important class of partial differential equation (PDE) methods, define dynamic surfaces implicitly as the level set (iso-surface) of a sampled, evolving nD function. The course begins with preparatory material that introduces the concept of using partial differential equations to solve problems in computer graphics, geometric modeling and computer vision. This will include the structure and behavior of several different types of differential equations, e.g. the level set eq ...

18 Programming with abstract data types, some examples



 Bengt Nordström

January 1978 Proceedings of the 1978 annual conference - Volume 2

Publisher: ACM Press

Full text available:  pdf(600.43 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The data structuring facilities of contemporary languages like Algol-68, Pascal and Simula supports only one type of graphs, the general graph. It is only possible to define the structure of a node in a graph, not to define how the nodes are interrelated. Nothing in the languages prevents the programmer from using for instance a node in a binary tree as an element in a double list. This means that the programmer has to prove a lot of invariants on graphs which would n ...

Keywords: Graphs, Mappings, Pascal, Pointers

19 QuickStore: a high performance mapped object store



 Seth J. White, David J. DeWitt

May 1994 ACM SIGMOD Record , Proceedings of the 1994 ACM SIGMOD international conference on Management of data SIGMOD '94, Volume 23 Issue 2

Publisher: ACM Press

Full text available:  pdf(1.73 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper presents, QuickStore, a memory-mapped storage system for persistent C++ built on top of the EXODUS Storage Manager. QuickStore provides fast access to in-memory objects by allowing application programs to access objects via normal virtual memory pointers. The paper also presents the results of a detailed performance study using the OO7 benchmark. The study compares the performance of QuickStore with the latest implementation of the E programming language. These systems exemplify ...

20 Special system-oriented section: the best of SIGMOD '94: QuickStore: a high performance mapped object store



Seth J. White, David J. DeWitt

October 1995 The VLDB Journal — The International Journal on Very Large Data Bases, Volume 4 Issue 4

Publisher: Springer-Verlag New York, Inc.

Full text available:  pdf(2.58 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

QuickStore is a memory-mapped storage system for persistent C++, built on top of the EXODUS Storage Manager. QuickStore provides fast access to in-memory objects by allowing application programs to access objects via normal virtual memory pointers. This article presents the results of a detailed performance study using the OO7 benchmark. The study compares the performance of QuickStore with the latest implementation of the E programming language. The QuickStore and E systems exemplify the two ba ...

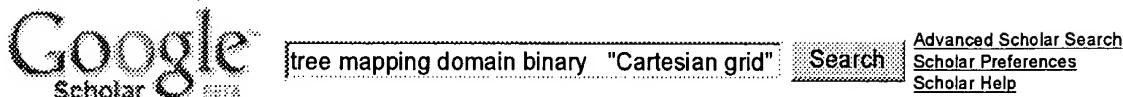
Keywords: benchmark, client-server, memory-mapped, object-oriented, performance, pointer swizzling

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HW Shen, LJ Chiang, KL Ma - IEEE Visualization, 1999 - portal.acm.org

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MJ Aftosmis - 28 th Computational Fluid Dynamics Annual Lecture Series, ..., 1997 - people.nas.nasa.gov

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AF Blumberg, BN Kim, SO'Neil, JK Lewis, PJ Stein ... - hydroqual.com

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N Ray, ST Acton - IEEE TRANSACTIONS ON IMAGE PROCESSING, 2005 - ieeexplore.ieee.org

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O Kreylos, GH Weber, EW Bethel, JM Shalf, B Hamann ... - IEEE Visualization 2002, Boston, MA (US), 10/27/2002–11/01/ ..., 2002 - cipic.ucdavis.edu

... to perform load bal- ancing during **domain** decomposition that ... renderers employ the 3D texture **mapping** capabilites of ... we use a simple **binary-tree** based composit ...Cited by 3 - View as HTML - Web Search[Algorithm for assembling overlapping grid systems - group of 6 »](#)

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J Steensland, S Chandra, M Parashar - IEEE Transactions on Parallel and Distributed Systems, 2002 -
doi.ieeecomputersociety.org
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"Characterization of Domain-Based Partitioners ... A Parallel Hashed Oct-Tree N-Body ...
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NA Petersson - SIAM JOURNAL ON SCIENTIFIC COMPUTING, 1999 - epubs.siam.org
... are not on the boundary of the computational **domain** and must ... These nodes are the
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